

REMARKS

Claims 1-6 and 13-15 are rejected. Claims 7-12 and 16 are withdrawn from consideration. Claims 1 and 13 have been amended. Claims 1-16 are presently pending in the application.

The basis for the amendment to claims 1 and 13 is found on page 4, line 22 of the specification as originally filed. Favorable reconsideration of the application in view of the following remarks is respectfully requested.

Restriction Requirement:

The Examiner has required restriction between Group I, claims 1-6, and 13-15, drawn to a transaction card with an LCD display, classified in class 349, subclass 86 and Group II, claims 7-12 and 16, drawn to a transaction card system, classified in class 235, subclass 375. The Applicant confirms the telephone election with Chris Konkol of August 13, 2003 in which the provisional election of Group I, claims 1-6, and 13-15 was made without traverse.

Drawings:

The Applicant thanks the Examiner for holding the requirement corrected drawings in abeyance.

Rejection Of Claims 1-4, 6 and 13-15 Under 35 U.S.C. §103(a):

The Examiner has rejected Claims 1-4, 6, and 13-15 under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (U.S. Patent No. 5,055,662) in view of Yang et al. (U.S. Patent No. 6,061,107), indicating that Hasegawa discloses a transaction card and method of making a transaction card having a card body, machine readable information on the card body, a flexible display, affixed to the card body for displaying information related to the machine readable information, and an array of conductors, or contacts, connected to the display for applying selected voltages from an external display driver that changes the state of the display, and, although the reference teaches a display having a polymer-dispersed cholesteric liquid crystal material having a first planar reflective state and a second transparent focal conic state, which is responsive to an applied voltage to display information until the voltage is removed, Hasegawa does not specifically disclose a display that is pressure-insensitive. The Examiner states that Yang discloses a bistable polymer dispersed cholesteric liquid crystal display (LCD) that is insensitive to pressure and, therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have

formed a transaction card with a pressure-insensitive display since one would be motivated to provide versatility (col. 5, lines 1-6), such as different pitches in different regions to make, for example, a multi-color display, self-adhesion (col. 6, lines 18-22) that reduces bulkiness, and protection (col. 6, lines 15-18).

Hasegawa discloses a portable prepaid card comprising a substrate bearing a photoconductive layer, a liquid crystal layer, and a continuous transparent electrode plate, in this order. When an optical image is radiated on the photoconductive layer through the liquid crystal layer, the regions exposed to the light and the unexposed regions of the photoconductive layer have different volume resistances. In this state, if a predetermined voltage is applied from the outside between the electrode plate and the photoconductive layer, a visible image corresponding to the radiated optical image is fixed in the liquid crystal layer. The resulting card allows ease of writing or erasing information and provides a visible information display section which both the user and the card handling machine can easily read to learn the correct balance on the card. Hasegawa fails to disclose an array of patterned conductors, which provide improved ease, and versatility of manufacture. Hasegawa also fails to disclose a pressure-insensitive liquid crystal material to avoid damage to the display as a result of flexing of the substrate bearing the layers.

Yang discloses polymer/cholesteric liquid crystal dispersions in which the liquid crystal phases are separated from the polymer matrix to form droplets. The cholesteric liquid crystals, which are positive dielectric anisotropic, are bistable at a zero field condition, that is, the liquid crystal can be in either the reflecting planar state or the scattering focal conic state. These dispersions may be used to produce multicolor reflective cholesteric displays and prevent inter-pixel diffusion of the cholesteric liquid crystals. Yang fails to teach or disclose patterned conductive layers, fails to mention anything relating to use of pressure-insensitive liquid crystal materials in transaction cards, and fails to mention use of a pressure-insensitive liquid crystal material to avoid damage to the display of such a transaction card.

The present invention, as amended, relates to a transaction card having machine readable information and a visible display comprising a card body, machine readable information on the card body, and a flexible display including a pressure-insensitive polymer-dispersed cholesteric liquid crystal

material affixed to the card body for displaying information related to the machine readable information and an array of patterned conductors connected to the display for applying selected voltages from an external display driver to the display to change the state of the display. The invention provides an inexpensive means for providing machine-readable information in conjunction with an electrically updateable display, which is insensitive to pressure to avoid obscuring the data written on the display as a result of the flexing of the card.

To establish a prima facie case of obviousness under 35 U.S.C. § 103, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

The references fail to provide any motivation to combine. Hasegawa fails to teach or disclose the use of pressure insensitive liquid crystal materials. Yang fails to teach anything regarding the use of pressure insensitive cholesteric liquid crystal material in portable cards, teaching instead use in "large area displays" (col. 6, lines 17-18), self-adhesion (col. 6, lines 18-22), and use in multicolor displays by control of pitches in different regions of the liquid crystal dispersion (col. 6, lines 24-25). The Applicant was unable to locate any reference to versatility in col. 5, lines 1-6 or reductions in bulkiness and protection (col. 6, lines 15-18) as indicated by the Examiner. In summary, neither reference teaches, discloses, or suggests, the use of pressure insensitive liquid crystal materials to produce a portable card, which resists the deleterious effects on the card display, caused by the flexing of the transaction card.

The references fail to provide any likelihood of success. As mentioned above, neither reference teaches, discloses, or suggests the use of pressure insensitive liquid crystal materials to produce a portable card, which resists the deleterious effects on the card display caused by the flexing of the transaction card. There are a very large number of compounds and methods

known to those skilled in the art which may be utilized to produce displays on substrates and the decision of which to use depends on many different factors. Liquid crystal displays are complex and unpredictable and the fact that two technologies are independently successful does not indicate that the combination will be useful or beneficial, especially in light of the fact that neither reference mentions the problem solved by the present invention. At most, the Examiner has set forth an argument that it would be "obvious to try" the combination of the cited references. Therefore, there is no reasonable expectation of success found in any combination of the cited references. It is only in hindsight and with the teachings of Applicant's invention that the Examiner has concluded that the combination of pressure insensitive liquid crystal materials with a specifically configured transaction card is obvious.

In addition, the reference fail to include the limitations of the present claims, as amended. Neither Yang nor Hasegawa teach, disclose or suggest the use of an array of patterned conductors to produce easier to manufacture and less costly transaction cards. Hasegawa fails to include pressure insensitive liquid crystal materials, while Yang fails to teach the use of pressure insensitive liquid crystal material in transaction cards. Since neither Yang nor Hasegawa, alone or in combination, provide the motivation, likelihood of success or claim limitations necessary to establish a prima facie case of obviousness, the Applicant requests that the Examiner reconsider the rejection of Claims 1 and 13.

The Examiner has also rejected claims 2, 3, and 6, which depend from claim 1, which, as discussed above, the Applicant believes is nonobvious with respect to the prior art. The Applicant therefore requests reconsideration of this rejection.

The Examiner has rejected claims 4, 14, and 15, as Hasegawa discloses a transaction card made with a cholesteric liquid crystal material as recited above following the steps of providing the liquid crystal layer, providing a substrate having a first conductor (fig. 3, ref. 16b), coating the dispersion on the substrate (fig. 3, ref. 15), and printing the conductors, or contact circuits (fig. 3, ref. 6) on to the coated dispersion, but fails to specifically disclose a polymer ratio that renders the composition pressure-insensitive or to specifically disclose dispersing the liquid crystal in an aqueous gelatin solution and including the step of drying the dispersion after coating. The Examiner indicates, however, that

Yang discloses a bistable polymer dispersed cholesteric liquid crystal display (LCD) that is made insensitive to pressure (col. 6, lines 15-18) by dispersing the liquid crystal in an aqueous gelatin solution and including the step of drying the dispersion after coating (col. 2, lines 54-64) and, therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have formed a transaction card with a pressure-insensitive display since one would be motivated to provide versatility (col. 5, lines 1-6), such as different pitches in different regions to make, for example, a multi-color display, self-adhesion (col. 6, lines 18-22) that reduces bulkiness, and protection (col. 6, lines 15-18).

Claims 4, 14, and 15 depend from claims 1 and 13, which, as discussed above, the Applicant believes are nonobvious with respect to the prior art. In addition, the Applicant has been unable to locate the portion of Yang stating "by dispersing the liquid crystal in an aqueous gelatin solution and including the step of drying the dispersion after coating (col. 2, lines 54-64)" referred to by the Examiner or any other portion of Yang, which makes reference to dispersing the liquid crystal in an aqueous gelatin solution. Also, as previously stated, the Applicant is unable to locate any reference to versatility in col. 5, lines 1-6 or reductions in bulkiness and protection (col. 6, lines 15-18) as indicated by the Examiner.

Rejection Of Claim 5 Under 35 U.S.C. §103(a):

The Examiner has rejected Claim 5 under 35 U.S.C. 103(a) as being unpatentable over Hasegawa and Yang in view of Hara (U.S. Patent No. 4,797,542), stating that Hasegawa and Yang disclose a transaction card as recited above with conductors, but fail to specifically disclose conductors that are a printed emulsion of carbon in polymer. However, Hara discloses a transaction card with an LCD display having conductors that are a printed carbon (fig. 4, ref. 32a; col. 5, lines 14-19), and therefore, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have conductors that are a printed emulsion of carbon in polymer since one would be motivated to provide a reliable and well-known means of transmitting power to the display.

Hara discloses a card-like electronic apparatus includes a plurality of external contacts and input terminals, includes a memory for storing application data, a designating unit for designating the application as stored in the

memory, and a display unit for displaying the designated application data. When a power control key provided on the side of a card apparatus is in an on state, the application can be changed to another application by the designating unit. The applications as designated are successively displayed by the display unit. Through this display, the application to be used at any given time can be specified.

To establish a prima facie case of obviousness under 35 U.S.C. § 103, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combines) must teach or suggest all the claim limitations.

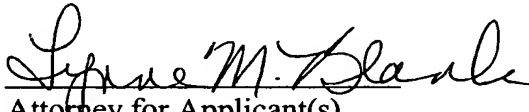
As discussed above, the Applicant believes that neither Hasegawa nor Yang alone or in combination provide the motivation, likelihood of success or claim limitations necessary to establish a prima facie case of obviousness.

In addition, the Applicant believes that Hara also fails to provide the necessary elements. First, Hara fails to teach the use of pressure insensitive liquid crystal materials. Hara also fails to teach an array of patterned conductors in combination with a liquid crystal display. Hara also fails to teach the use of a patterned conductor, which is a printed emulsion of carbon in a polymer, in connected to a display to apply selected voltage to the display. Hara (col. 5, line 14-19, cited by the Examiner) refers to two pairs of movable key contacts formed onto the upper surface of a sub-wiring board so that they will face the key display printing section of upper surface sheet and make contact with and key contacts to make up the application select key input section and history call-up section of the apparatus. These contacts are in no proximity to the liquid crystal display as can be easily seen from Fig. 1, in which the display portion of the apparatus is identified as 4 or 4a and the key contact portion of the device is identified as 2 or 2a, 3 or 3a. This lack of proximity can also be seen from Fig. 3, liquid crystal display 40 and wiring board unit 20. In summary, Hara provides no motivation to combine its teaching that a key contact made of a certain material with the teachings of Yang and Hasegawa to produce the transaction card including pressure insensitive liquid crystal materials as presently claimed. Next, the reference to Hara fails to provide any likelihood of success. Hara fails to teach, disclose, or suggest the use of pressure insensitive liquid crystal materials to

produce a portable card, which resists the deleterious effects on the card display caused by the flexing of the transaction card. Finally, the reference to Hara fails to include the limitations of the present claims, as amended, as Hara fails to teach, disclose or suggest the use of a transaction card including a flexible, pressure insensitive, liquid crystal display in combination with an array of patterned conductors to produce easier to manufacture and less costly transaction cards. Since neither Hara, nor Hara in combination with Yang and Hasegawa provide the motivation, likelihood of success or claim limitations necessary to establish a prima facie case of obviousness, the Applicant requests that the Examiner reconsider the rejection of Claim 5.

It is believed that the foregoing is a complete response to the Office Action and that the claims are in condition for allowance. Favorable reconsideration and early passage to issue is therefore earnestly solicited.

Respectfully submitted,


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